Switch Quick Configuration CLI Guide for

SSE-G48-TG4
SSE-G24-TG4
SSE-X24S
SSE-X24SR
SSE-X3348S
SSE-X3348SR
SSE-X3348T
SSE-X3348TR
SBM-GEM-X2C
SBM-GEM-X2C+
SBM-GEM-X3S+
SBM-XEM-X10SM

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1 Introduction

This document is designed to provide **Supermicro Switch** users with the information required to configure the basic functionalities on the switch through the Command Line Interface (CLI).

The **Supermicro Switch** command line interface is accessible through an RS232 console port, or viaTelnet and SSH connections.

The **Supermicro Switch** CLI is designed to follow industry standard CLI commands. Standard features including context sensitive “help” and auto-completion-on-tab-key are supported.

After logging in to the switch CLI, you are automatically in the user EXEC mode. This mode supports “show” commands and minimal configuration commands.

To enter the configuration mode, use the command “*configure terminal*”. For example:

```
SMIS# configure terminal
SMIS(config)#
```

To exit to EXEC mode, use the command *exit* or *end*.

Note:

Most of the contents of this manual apply to all of these switch products:

SSE-G48-TG4,
SSE-G24-TG4,
SSE-X24S,
SSE-X24SR,
SSE-X3348S,
SSE-X3348SR,
SSE-X3348T
SSE-X3348TR
SBM-GEM-X2C,
SBM-GEM-X2C+
SBM-GEM-X3S+
SBM-XEM-X10SM.

In a few sections the contents differ for these products. In those specific places, the applicable product is clearly identified. So if any particular product is not mentioned, you can assume that the contents are valid for these seven products**.**

2 Basic Configurations

2.1 Console Port

Switch	Console Port
SSE-G24-TG4 SSE-G48-TG4 SSE-X24S SSE-X24SR SSE-X3348S SSE-X3348SR SSE-X3348T SSE-X3348TR	These switches have a DB9 RS232 console port. Use the serial cable provided with the switch to connect the switch console port to any computer COM port.
SBM-GEM-X2C SBM-GEM-X2C+ SBM-GEM-X3S+	These switches have an RJ45 connector for the RS232 console port. Connect a regular straight RJ45 Ethernet cable to the switch console port, and connect the other end of the RJ45 Ethernet cable to the console adapter provided with the switch. The console adapter coverts the RJ45 to DB9 port. Connect the DB9 end of the console adapter to any computer COM port.
SBM-XEM-X10SM	This switch has a USB connector for the RS232 console port. Use the USB to DB9 serial cable provided with the switch to connect the USB console port to any computer COM port.

The computer COM port settings should be as follows:

Baudrate: 9600
Data: 8 bit
Parity: none
Stop: 1 bit
Flow Control: none

2.2 Management IP Address

The default management IP address for all Supermicro switch products is: **192.168.100.102**.

Switch	Management IP Interface
SSE-G24-TG4 SSE-G48-TG4	The management IP is configured for VLAN 1. All front 1G ports and back 10G ports are configured as untagged member ports of VLAN 1 by default. You can connect to any of the front panel 1G ports or back panel 10G ports to manage the switch with management IP.
SSE-X24S SSE-X24SR SSE-X3348S SSE-X3348SR SSE-X3348T SSE-X3348TR	The management IP is configured for a 1G management Ethernet port. You can connect to this management Ethernet port with the management IP. If you prefer to manage through the 10G ports, then you can assign the desired management IP address to VLAN 1. Alternatively, you can create any layer 3 VLAN to manage the switch through its 10G ports.
SBM-GEM-X2C SBM-GEM-X2C+ SBM-GEM-X3S+ SBM-XEM-X10SM	For blade switches, you can manage with the default IP through the CMM Ethernet connections. The internal management Ethernet ports of the blade switches are connected with the CMM Ethernet ports internally. If you prefer to manage through the front panel Ethernet ports, then you can assign the desired management IP address to VLAN 1. Alternatively, you can create any layer 3 VLAN and manage the switch through its front Ethernet ports.

2.2.1Changing Management IP Address

Function	Command Syntax	Example
Configure management IP address	*ip address <ip addr>*	*SMIS(config)# ip address 172.31.1.100*
Remove management IP address	*no ip address*	*SMIS(config)# no ip address*
Get management IP through DHCP	*ip address dhcp*	*SMIS(config)# ip address dhcp*
View management IP address	*show ip interface*	*SMIS# show ip interface*

2.2.2Default Gateway

The default gateway can be configured only for the SBM-GEM-X2C, SBM-GEM-X2C+, SBM-GEM-X3S+, SBM-XEM-X10SM and SSE-X24S, SSE-X24SR, SSE-X3348S, SSE-X3348SR, SSE-X3348T and SSE-X3348TR switches.

Use the command *ip gateway <ip addr>* to configure the gateway.

For example:

SMIS(config)# ip gateway 172.31.1.1

For other switches (SSE-G24-TG4 and SSE-G48-TG4) you can add the required route to access the gateway for a desired network. The route can be added using the command *ip route <prefix> <mask> {<next hop>* | *vlan <id>* | *interface }*.

For example:

SMIS(config)# ip route 10.0.0.0 255.0.0.0 172.31.0.1

Note:

For blade switches SBM-GEM-X2C, SBM-GEM-X2C+, SBM-GEM-X3S+ and SBM-XEM-X10SM the management IP address and default gateway can also be configured from the CMM management interface.

The management IP address and gateway of the switch are saved automatically into switch NVRAM. So you do not need to do a *save configuration* command in order to save the management IP and gateway.

2.3 User Accounts

The default administrative user name for all Supermicro switches is ADMIN and the password for all these switches is also ADMIN. The password for this ADMIN user can be changed using the command *username ADMIN password <new password>*.

New users can be created with different privilege levels. Fifteen is the highest privilege – it equals ADMIN user. One is the lowest privilege which only allows the user to view the configurations; the user may not modify them. The default privilege is at least one.

Function	Command Syntax	Examples
Create New User	*username <name> [password <password>] [privilege <level>]*	*SMIS(config)# username abc password abc privilege 15* *SMIS(config)# username new1 password new1*
Remove user	*no username <name>*	*SMIS(config)# no username abc*
Change password	*username <name> [password <password>]*	*SMIS(config)# username abc password aa12*
View users	*list users*	*SMIS# list users*

2.4 Interface MTU and Jumbo Frames

The interface MTU can be changed by using the *mtu* command in interface mode. The default MTU is 1500 bytes. The maximum supported MTU is 9202.

The Supermicro switch MTU refers only to the layer 2 payload size. Hence the MTU of 9202 means a total “in-wire” MTU of 9220 (14 bytes Ethernet Header plus 4 bytes FCS are added).

To configure the MTU for any interface, the interface must be administratively brought down using the *shutdown* command.

Function	Command Syntax	Examples
Configure MTU	*mtu <frame size>*	Example to configure MTU for port gi 0/1 *SMIS(config)# interface gi 0/1* *SMIS(config-if)# shutdown* *SMIS(config-if)# mtu 9000* *SMIS(config-if)# no shutdown*
View MTU	*show interface mtu*	*SMIS# show interface mtu*

To configure jumbo frame support just configure the MTU as 9200 bytes (or to any other jumbo size preferred up to 9202 bytes).

2.5 Interface Description

Interfaces can be assigned with a description or name in text. This helps users to identify or remember the interface connections with other components on the network.

Function	Command Syntax	Examples
Configure interface description	*description <string>*	Example to configure description for gi 0/1 *SMIS(config)# interface gi 0/1* *SMIS(config-if)# description lab network*
View description	*show interface description*	*SMIS# show interface description*

2.6 Configuring Interface Range

To configure the same parameters on multiple interfaces, the interface range command can be useful. For example, to configure the MTU as 9000 for all gi 0/1 to gi 0/24 ports, using the range command allows all to be configured in one sequence instead of requiring that they be configured on the individual interfaces 24 times.

Function	Command Syntax	Examples
Interface Range Command	*interface range <intf str>*	Example to configure mtu for 24 ports from gi 0/1 to gi 0/24 *SMIS(config)# interface range gi0/1-24* *SMIS(config-if)# shut* *SMIS(config-if)# mtu 9000* Example to configure description for 3 ports gi 0/1, gi 0/5 and gi 0/10 *SMIS(config)# int range gi0/1,gi0/5,gi0/10* *SMIS(config-if)# description test network*

2.7 Energy Efficient Ethernet

IEEE 802.3 defines the Ethernet standard and subsequent power requirements based on cable connections operating at 100 meters. Enabling power saving mode can reduce power used for cable lengths of 60 meters or less, with more significant reduction for cables of 20 meters or less, and continue to ensure signal integrity. IEEE 802.3az specifies a mechanism for reducing power consumption when a link is idle. It is known as “Energy Efficient Ethernet (EEE).”

The power-saving methods provided by this switch include this EEE power saving feature when there is no activity on a link: Under normal operation, the switch continuously auto-negotiates to find a link partner, keeping the MAC interface powered up even if no link connection exists. When using power-savings mode, the switch checks for energy on the circuit to determine if there is a link partner. If none is detected, the switch automatically turns off the transmitter, and most of the receive circuitry (entering Sleep Mode). In this mode, the low-power energy-detection circuit continuously checks for energy on the cable. If none is detected, the MAC interface is also powered down to save additional energy. If energy is detected, the switch immediately turns on both the transmitter and receiver functions, and powers up the MAC interface.

This feature is “Off” by default. To enable the feature on a particular port use the following command:

input “interface ex <interface-id>”.

SMIS(config)# interface ex 0/1

input “EEE mode” and then input “exit”.

SMIS(config-if)# EEE mode

SMIS(config-if)# exit

To confirm that the port is configured for EEE:

input “show interface ex <interface-id>”.

SMIS(config)# show interface ex 0/1

To disable this feature:

input “interface ex <interface-id>”.

SMIS(config)# interface ex 0/1

input “no EEE mode” and then input “exit”.

SMIS(config-if)# no EEE mode

SMIS(config-if)# exit

To confirm that EEE is disabled on the port:

input “show interface ex <interface-id>”.

SMIS(config)# show interface ex 0/1

2.8 Stacking

SSE-G24-TG4 and SSE-G48-TG4 switches support stacking up to 16 switches. SBM-GEM-X2C and SBM-GEM-X2C+ switches support stacking up to 8 switches.

Function	Command Syntax	Examples
Enable stacking on switch	*stack { priority {PM | BM | PS} } {switchId <NodeId (1-16)>} {ports <xg1,xg2,..>}*	Example to enable stacking with switch identifier 1 as preferred master using xg3 and xg4 as stacking ports *SMIS# stack priority PM switchid 1 ports xg3-4* Example to enable stacking with switch identifier 2 as preferred slave using xg1 and xg2 as stacking ports *SMIS# stack priority PS switchid 2 ports xg1-2* Example to enable stacking with switch identifier 3 as back up master using xg1 and xg2 as stacking ports *SMIS# stack priority BM switchid 3 ports xg1-2*
Remove from stacking	*no stack [switch id]*	To remove this switch from stack *SMIS# no stack* To remove switch 2 from stack from master CLI *SMIS# no stack switch 2*
View stack information	*show stack details*	*SMIS# show stack details*

Note:

1. Do not use the same switch ID for multiple switches on the stack.

2. Only one master switch may be configured in a stack. The slave switches will not allow you to configure any thing except to disable stacking. To login to a slave switch console port, use the login name of **stackuser** and password of **stack123**.

3. Make sure all stacked switches run the same version of firmware!

4. Only the same switch models can be stacked together. For example, the SSE-G24-TG4 switch can only be stacked with other SSE-G24-TG4 switches.

2.9 Tracking Uplink Failure

The Uplink Failure Tracking Feature (ULFT) is useful for blade switches (SBM-GEM-X2C, SBM-GEM-X2C+, SBM-GEM-X3S+ and SBM-XEM-X10SM). This helps blade servers to move to redundant Ethernet ports in case any blade switch uplink fails.

The user can configure one or more groups for ULFT. Each group can have one or more uplinks and one or more downstream ports.

Function	Command Syntax	Examples
Enabling uplink failure tracking feature	*link-status-tracking enable*	*SMIS(config)# link-status-tracking enable*
Disabling uplink failure tracking feature	*link-status-tracking disable*	*SMIS(config)# link-status-tracking disable*
Creating group	*link-status-tracking group <id>*	*SMIS(config)# link-status-tracking group 1*
Adding uplink to group	*link-status-tracking group <id> upstream*	*SMIS(config-if)# link-status-tracking group 1 upstream*
Adding downstream ports to group	*link-status-tracking group <id> downstream*	*SMIS(config-if)# link-status-tracking group 1 downstream*
View configuration	*show link-status-tracking*	*SMIS# show link-status-tracking*

For example if it is desired to bring down all fourteen ports from gi 0/1 to gi 0/14 when uplink interfaces gi 0/15 and gi 0/16 go down:

SMIS# configure terminal
SMIS(config)# link-status-tracking enable
SMIS(config)# link-status-tracking group 1
SMIS(config)# interface range gi0/15-16
SMIS(config-if)# link-status-tracking group 1 upstream
SMIS(config-if)# exit
SMIS(config)# interface range gi0/1-14
SMIS(config-if)# link-status-tracking group 1 downstream
SMIS(config-if)# exit

Note:

If more than one uplink port is configured, all downstream ports will be brought down only when all upstream ports are down.

2.10 Saving Configurations

Switch configurations can be saved using the command *write startup-config*.

A configuration saved as a default configuration will be loaded automatically every time the switch reboots.

Function	Command Syntax	Examples
Save the configuration as default	*write startup-config*	*SMIS# write startup-config*
Save the configuration on a file	*write flash:filename*	*SMIS# write flash:abc*
Save the configuration on a remote TFTP machine	*write tftp://ip-address/filename*	*SMIS# write tftp://10.1.1.1/abc*
To view all saved configuration files	*list files*	*SMIS# list files*
To delete a particular configuration file	*erase flash:filename*	*SMIS# erase flash:abc*
To erase the default configuration	*erase startup-config*	*SMIS# erase startup-config*
To choose any saved configuration file as the default config	*set startup-config <file>*	*SMIS# configure terminal* *SMIS(config)# set startup-config abc*

2.11 Upgrading Firmware

Switch firmware can be upgraded from the CLI using the command *firmware upgrade*.

Function	Command Syntax	Examples
To upgrade firmware	*firmware upgrade tftp://<ip-address>/<filename> flash:normal*	*SMIS# firmware upgrade tftp://10.1.1.1/SWITHC_FIRMWARE_1.0.7.bin flash:normal*
To upgrade to fallback firmware	*firmware upgrade tftp://<ip-address>/<filename> flash:fallback*	*SMIS# firmware upgrade tftp://10.1.1.1/SWITHC_FIRMWARE_1.0.7.bin flash:fallback*

Make sure the TFTP server is running on the computer where the firmware image is available.

2.12 Resetting to Factory Defaults

Supermicro switches can be reset to factory defaults using the CLI command *reset-to-factory-default*.

Function	Command Syntax	Examples
Reset to factory defaults	*reset-to-factory-defaults*	*SMIS# configure terminal* *SMIS(config)# reset-to-factory-defaults*

3 VLAN Configurations

The SSE-G24-TG4, SSE-G48-TG4, SBM-GEM-X2C, SBM-GEM-X2C+ and SBM-GEM-X3S+ switches all support 1024 static VLANs. The SSE-X24S, SSE-X24SR, SSE-X3348S, SSE-X3348SR, SSE-X3348T, SSE-X3348TR and SBM-XEM-X10SM switches support 4K static VLANs.

The below table describes the basic VLAN configuration commands.

Function	Command Syntax	Examples
Creating VLAN	*vlan <vlan id>*	*SMIS(config)# vlan 10* *SMIS(config-vlan)#*
Adding tagged ports to VLAN	*ports <ports list> tagged*	*SMIS(config-vlan)# ports gi 0/1-10 tagged*
Adding untagged ports to VLAN	*ports <ports list> untagged*	*SMIS(config-vlan)# ports gi 0/11,0/13 untagged*
Forbidding ports to VLAN	*ports <ports list> forbidden*	*SMIS(config-vlan)# ports gi 0/15-20,0/23 forbidden*
Removing ports from VLAN	*no ports <ports list> <tagged | untagged | forbidden>*	To remove tagged ports *SMIS(config-vlan)# no ports gi 0/1-5 tagged* To remove untagged ports *SMIS(config-vlan)# no ports gi 0/1-5 untagged* To remove forbidden ports *SMIS(config-vlan)# no ports gi 0/1-5 forbidden*
Deleting VLAN	*no vlan <vlan-id>*	*SMIS(config)# no vlan 10*
Configuring name to VLAN	*name <string>*	*SMIS(config-vlan)# name labVlan*
Port VLAN ID	*switchport pvid <vlan>*	To configure pvid for port gi 0/1 as vlan 10 *SMIS(config)# interface gi 0/1* *SMIS(config-if)# switchport pvid 10*

Note: PVID

Supermicro switches associate all untagged packets received as VLAN 1. This happens irrespective of the VLANs associated with the received ports. Therefore if you need untagged packets to be associated with a particular VLAN of the ports, it is necessary to configure a **pvid** for the ports.

3.1 VLAN Example

Requirements:

A. Limit VLAN 1 to only one port gi 0/1
B. Ports gi 0/2-5 untagged member of VLAN 100
C. Ports gi 0/6-10 tagged member of VLAN 100
D. Ports gi 0/11-15 untagged member of VLAN n 200
E. Ports gi 0/16-20 tagged member of VLAN 200
F. Port ex 0/1 tagged member of VLAN 100 and 200

First remove all other ports from VLAN 1 except required port gi 0/1 with the commands below:

```
SMIS# config term
SMIS(config)# vlan 1
SMIS(config-vlan)# no ports gi 0/2-24 untagged
SMIS(config-vlan)# no ports ex 0/1-4 untagged
SMIS(config-vlan)# exit
```

The above commands assumed the port numbers used on SSE-G24-TG4 switches. On other switches use appropriate port numbers.

Create VLAN 100 and add untagged and tagged ports as required:

```
SMIS(config)# vlan 100
SMIS(config-vlan)# ports gi 0/2-5 untagged
SMIS(config-vlan)# ports gi 0/6-10 tagged
SMIS(config-vlan)# ports ex 0/1 tagged
SMIS(config-vlan)# exit
```

Create VLAN 200 and add untagged and tagged ports as required:

```
SMIS(config)# vlan 200
SMIS(config-vlan)# ports gi 0/11-15 untagged
SMIS(config-vlan)# ports gi 0/16-20 tagged
SMIS(config-vlan)# ports ex 0/1 tagged
SMIS(config-vlan)# exit
```

Configure the switch port pvid also for these ports as below:

```
SMIS(config)# interface range gi0/2-10
SMIS(config-if)# switchport pvid 100
SMIS(config-if)# exit
SMIS(config)# interface range gi0/11-20
```

SMIS(config-if)# switchport pvid 200
SMIS(config-if)# exit

Let us choose pvid for ex 0/1 as 200 in this case:

```
SMIS(config)# interface ex 0/1
SMIS(config-if)# switchport pvid 200
SMIS(config-if)# exit
```

4 Link Aggregation (LA)

Link Aggregation (LA) is a method of combining multiple parallel physical connections into a single logical connection(trunk), thus allowing increased bandwidth for a particular network path beyond what a single connection could sustain. By taking multiple LAN connections and treating them as a unified, aggregated link, practical benefits in many applications can be achieved. For example, link aggregation provides redundancy in case one of the links fails. Link Aggregation also provides load balancing so that processing and communication activity is distributed across several links in a trunk ensuring that no single link is overwhelmed.

Other terms often used to describe this Link Aggregation method include **port trunking, link bundling**, **bonding**, or **teaming**. These umbrella terms encompass industry standards such as **IEEE 802.1ax** Link Aggregation Control Protocol (LACP) for wired Ethernet, or the previous **IEEE 802.3ad**, as well as various proprietary solutions. In this manual we will also refer to a particular group of aggregated links as a **Port Channel**.

Supermicro switches support both static link aggregation and dynamic link aggregation using IEEE 802.3ad and LACP. Up to 24 Port Channels can be configured on an individual switch and each Port Channel can contain up to 8 members.

The table below describes the basic link aggregation / port channel configuration commands:

Function	Command Syntax	Examples
Enable port channel feature	`set port-channel enable`	*SMIS(config)# set port-channel enable*
Create port channel	`interface port-channel`	*SMIS(config)# interface port-channel 1*
Associating ports to port-channel statically	`channel-group <channel> mode manual`	First ho into desired port by typing the command *interface gi/ex <port>*. For example: *SMIS(config)# interface range gi0/15-16* Configure the port channel ID using the channel-group command *SMIS(config-if)# channel-group 1 mode on* *SMIS(config-if)# exit*
Associating ports to LACP port channel	`channel-group <channel> mode <active | passive>`	First ho into desired port by typing the command *interface gi/ex <port>.* For example: *SMIS(config)# interface range gi0/15-16* Configure the port channel ID using the

		channel-group command *SMIS(config-if)# channel-group 1 mode active* *SMIS(config-if)# exit*
Activate created port channel	`no shutdown`	*SMIS(config)# int port-channel 1* *SMIS(config-if)# no shutdown* *SMIS(config-if)#exit*

Once a port-channel is created, it can be added as required to any VLAN configuration(s). The **pvid** can also be configured for port channel interfaces just as it is for any other ports.

4.1 Link Aggregation Example

Requirement:

A. Ports gi 0/15 and 0/16 need to be trunked
B. And this trunk has to carry VLANs 100 and 200

First enable the port channel feature:

SMIS# config term
SMIS(config)# set port-channel enable

Crate the port channel interface:

SMIS(config)# int port-channel 1
SMIS(config-if)# exit

Add ports to create the port channel interface:

SMIS(config)# int range gi0/15-16
SMIS(config-if)# channel-group 1 mode on
SMIS(config-if)# exit

Associate VLANs to this port channel:

SMIS(config)# vlan 100
SMIS(config-vlan)# ports po 1 tagged
SMIS(config-vlan)# exit
SMIS(config)# vlan 200
SMIS(config-vlan)# ports po 1 tagged
SMIS(config-vlan)# exit

Activate the created port channel:

SMIS(config)# int port-channel 1
SMIS(config-if)# no shut

SMIS(config-if)# exit